

25th.—S. S. "Etruria," in N. 41° 12', W. 48° 25', passed a large iceberg.

26th.—S. S. "Austrian," in N. 45° 23', W. 45° 4', passed a large iceberg; in N. 43° 20', W. 45° 36', passed another; s. s. "Circassian," in N. 48° 1', W. 50° 38', passed four icebergs; in N. 47° 56', W. 50° 49', passed five bergs; in N. 46° 53', W. 52° 18', passed one berg, and passed another six miles east of Cape Race.

27th.—S. S. "State of Indiana," in N. 43° 34', W. 45° 51', passed an iceberg and several pieces; s. s. "Westernland," in N. 41° 18', W. 47° 54', passed a large iceberg.

28th.—S. S. "East Anglia," in N. 42° 50', W. 49° 0', to W. 51° 40', from 3 a. m. to 4 p. m., passed about sixty large icebergs; s. s. "Austrian," in N. 43° 13', W. 49° 48', passed a large iceberg; in N. 42° 52', W. 51° 2', passed two bergs, and in N. 42° 12', W. 50° 55' passed one berg.

29th.—S. S. "Baltic," in N. 43° 46', W. 45° 57', passed a small piece of ice; s. s. "Rialto," in N. 41° 0', W. 47° 50', passed a large iceberg; s. s. "York City," in N. 46° 23', W. 43° 54', at 11.40 a. m., saw an immense iceberg.

The following reports are taken from the daily ice reports of the "International Nautical Magazine":

1st to 4th.—Brig "Coma," between N. 49° 5', W. 52° 56' and N. 49° 50', W. 53° 10', passed one hundred and fifty icebergs.

1st.—S. S. "Cydonia," in N. 46° 30', W. 53° 30', passed a large iceberg about ten miles north.

2d.—S. S. "Trinacria," in N. 41° 24', W. 48° 26', passed a medium-sized iceberg.

3d.—S. S. "Celtic," between N. 41° 20', W. 48° 2' and N. 41° 30', W. 49° 50', passed seven icebergs.

8th.—S. S. "California," in N. 41° 50', W. 49° 30', at 4 a. m., passed a large iceberg, and from N. 41° 49', W. 50° 0' to N. 41° 48', W. 51° 30', passed twenty-four icebergs and several pieces of ice.

9th.—S. S. "Brooklyn City," in N. 44° 6', W. 47° 40', passed several large and small pieces of ice; in N. 44° 0', W. 47° 50', at 11 a. m., passed a large iceberg; in N. 44° 0', W. 48° 15', at 3.45 p. m., passed an iceberg about one hundred and fifty feet high and half a mile long.

11th.—S. S. "Martha," in N. 43° 21', W. 46° 25', at 6 p. m., passed several icebergs.

12th.—S. S. "Martha," in N. 42° 9', W. 50° 14', at 4.30 a. m., passed a large iceberg.

14th.—S. S. "St. Simon," in N. 41° 10', W. 49° 30', passed three icebergs, one of which was about one hundred and fifty feet high and about six hundred feet long; also large quantities of broken ice.

15th.—S. S. "Ludgate Hill," between N. 45° 11', W. 45° 19' and N. 44° 45', W. 47° 8', passed about thirty-five icebergs of various sizes; s. s. "W. A. Scholten," between N. 43° 46', W. 47° 8' and N. 43° 29', W. 48° 1', passed fourteen icebergs.

16th.—S. S. "W. A. Scholten," in N. 42° 55', W. 49° 46', at 4 a. m. passed two icebergs; in N. 42° 38', W. 50° 38', passed several bergs.

20th.—S. S. "Hekla," in N. 46° 20', W. 44° 30', at 2 p. m., passed several icebergs.

21st.—S. S. "Jersey City," from N. 46° 21', W. 44° 36' to N. 46° 1', W. 45° 32', passed two icebergs.

22d.—S. S. "Jersey City," in N. 44° 56', W. 49° 0', passed a very large iceberg.

SIGNAL SERVICE AGENCIES.

Signal Service agencies have been established in the Maritime Exchange buildings at New York and Philadelphia, and in the Custom-House, Boston, where the necessary blanks and other information will be furnished to ship-masters. In the REVIEW for January, 1885, was published an explanation of the object of these agencies.

In pursuance of the arrangements made with the Meteorological Office of London, England, there were cabled to that office from New York during June, 1885, twenty reports con-

cerning storms and icebergs encountered by vessels in the Atlantic west of the forty-fifth meridian; seven messages were sent from Boston.

TEMPERATURE OF THE AIR.

[Expressed in degrees, Fahrenheit.]

The distribution of mean temperature over the United States and Canada for June, 1885, is exhibited on chart ii. by the dotted isothermal lines; and in the table of miscellaneous meteorological data are given the means for the various stations of the Signal Service.

On chart iv. the departures from the normal temperatures are graphically exhibited by the lines connecting stations of equal departure, and in the table of miscellaneous data are given the departures for the several stations.

From chart iv. it will be seen that the temperature for June was below the normal in all districts except along the New England coast, in portions of Idaho, Washington Territory, and the Gulf states. The departures below the normal nowhere exceeded 5°, and except in the middle and southern plateau districts and portions of the Ohio valley and lake region, they have been less than 4°.

In the districts where the mean temperatures were above the normal the departures have been slight, only three stations showing deviations of more than 1°, viz: Olympia, Washington Territory, 2°.6; Galveston, Texas, 1°.6; and New Orleans, Louisiana, 1°.2.

In the following table are given the mean temperatures for the several geographical districts with the normals and departures, as deduced from the Signal Service observations:

Average temperatures for June, 1885.

Districts.	Average for June, Signal-Service observations.		Comparison of June, 1885, with the average for several years.
	For several years.	For 1885.	
New England	64.3	64.1	— 0.2
Middle Atlantic states.....	70.7	69.7	— 1.0
South Atlantic states.....	76.9	76.5	— 0.4
Florida peninsula.....	80.8	80.6	— 0.2
Eastern Gulf states.....	78.7	79.1	+ 0.4
Western Gulf states.....	80.1	80.5	+ 0.4
Rio Grande valley.....	84.2	83.5	— 0.7
Tennessee.....	75.9	76.0	+ 0.1
Ohio valley.....	73.2	70.7	— 2.5
Lower lake region.....	67.0	64.1	— 2.9
Upper lake region.....	61.5	59.4	— 2.1
Extreme northwest.....	62.6	60.4	— 2.2
Upper Mississippi valley.....	71.0	69.7	— 1.3
Missouri valley.....	69.8	68.3	— 1.5
Northern slope.....	72.3	59.8	— 12.5
Middle slope.....	70.0	68.6	— 1.4
Southern slope.....	77.9	77.5	— 0.4
Southern plateau.....	75.3	71.7	— 3.6
Middle plateau.....	65.9	61.8	— 4.1
Northern plateau.....	65.0	63.9	— 1.1
North Pacific coast region.....	60.6	60.4	— 0.2
Middle Pacific coast region.....	64.6	62.1	— 2.5
South Pacific coast region.....	71.9	70.1	— 1.8
Mount Washington, N. H.....	43.9	46.2	+ 2.3
Pike's Peak, Colo.....	32.7	29.8	— 2.9

RANGES OF TEMPERATURE.

The monthly, and the greatest and least daily ranges of temperature are given in the table of miscellaneous data.

The monthly ranges were greatest in the extreme northwest and in the Rocky mountain districts; they were least at the stations on the Gulf and Pacific coasts. The following are some of the extreme monthly ranges: greatest, 77° at Phoenix, Arizona; 63°.5 at Wilcox, Arizona; 61°.3 at San Carlos, Arizona; and 60°.5 at Fort Benton, Montana; least, 17°.5 at San Francisco, California; 18°.6 at Galveston, Texas; and 19°.3 at Fort Canby, Washington Territory.

DEVIATIONS FROM MEAN TEMPERATURE.

The departures exhibited by the reports from the regular Signal Service stations are shown in the table of average temperatures for the several geographical districts; in the table of

miscellaneous meteorological data, and on chart iv. The following notes in connection with this subject are reported by voluntary observers:

Arkansas.—Lead Hill, Boone County: mean temperature, 80° 2, is 3° 9 above the June average for the last three years.

California.—Princeton, Colusa county: mean temperature, 69° 8, is 6° 3 below the June average for the last twelve years.

Dakota.—Webster, Day county: mean temperature, 67° 4, is 4° 7 below the June average for the three preceding years.

Georgia.—Milledgeville, Baldwin county: mean temperature, 79° 2, is about the June average.

Illinois.—Riley, McHenry county: mean temperature, 64° 7, is 1° 6 below the June average for the last twenty-four years.

Anna, Union county: mean temperature, 76° 5, is 1° 9 above the June average for the last ten years.

Peoria, Peoria county: mean temperature, 73° 2, is 0° 2 below the June normal for a period of thirty years.

Table of comparative maximum temperatures for the month of June.

State or Territory.	Maximum for June, 1885, Signal Service.		Maximum since Signal-Service stations were opened—3 to 14 years.			Highest from any other source.			
	Station.	Temperature.	Station.	Temperature.	Year.	Place.	Temperature.	Year.	Length of record.
Alabama	Montgomery	95.2	Montgomery	105.5	1881	Mount Vernon Arsenal	102	1876	Years.
Do	Mobile	93.4	Mobile	100	1877, 1882	Mobile	96	1876	35
Arizona	Prescott	88.7	Prescott	102	1878	Fort Mojave	119	1876	34
Do	Phoenix	109.8	Yuma	117	1883	Fort Lowell	116	1876	13
Arkansas	Fort Smith	92.8	Fort Smith	101	1882	Fort Smith	99	1876	21
Do	Little Rock	95.0	Little Rock	98	1882	Little Rock	95	1876	28
California	San Francisco	67.0	San Francisco	95	1883	Benicia Barracks	103	1876	25
Do	San Diego	74.5	San Diego	94	1877	San Diego	102	1876	16
Colorado	Denver	86.2	Denver	99	1881	Fort Lyon	107	1876	22
Do	Pike's Peak	43.6	Pike's Peak	63	1881	Fort Garland	93	1876	24
Connecticut	New Haven	89.3	New Haven	92	1880, 1884	New Haven	102	1864	87
Do	New London	96.6	New London	89	1880	Fort Trumbull	93	1864	48
Dakota	Fort Sully	92.1	Fort Sully	111	1874, 1876	Fort Sully	108	1868, 1870	16
Do	Yankton	92.1	Yankton	97	1876	Fort Buford	106	1868, 1870	15
Delaware	Cape Henlopen	93.2	Delaware Breakwater	89	1880	Fort Delaware	97	1868, 1870	45
District of Columbia	Washington City	95.1	Washington City	102.5	1874	Washington City	99	1868, 1870	49
Florida	Pensacola	93.1	Pensacola	97	1881	Fort Barrancas	104	1854	57
Do	Key West	93.2	Key West	95.5	1881	Key West	97	1854	44
Georgia	Augusta	99.0	Augusta	101.8	1881	Augusta Arsenal	100	1854	49
Do	Savannah	95.0	Savannah	100	1880	Savannah	102	1839, 1845	38
Idaho	Boise City	98.6	Boise City	96	1878	Fort Boise	107	1876	15
Do	Lewiston	91.0	Lewiston	98	1883	Fort Lapwai	105	1876	16
Illinois	Chicago	87.7	Chicago	98	1872	Chicago	102	1870, 1873	38
Do	Cairo	92.0	Cairo	96	1872	Rock Island Arsenal	102	1865, 1867	12
Indiana	Indianapolis	90.1	Indianapolis	96	1874	Vevay	100	1865, 1867	14
Do	Indianapolis	90.1	Indianapolis	96	1874	Spiceland	97	1865, 1867	7
Indian Territory	Fort Reno	95.3	Fort Gibson	100	1879, 1881	Fort Gibson	103	1879	48
Do	Fort Sill	93.0	Fort Sill	105	1881	Fort Sill	103	1879	9
Iowa	Dubuque	88.0	Dubuque	98	1874	Dubuque	102	1870	11
Do	Keokuk	88.8	Keokuk	96	1873	Muscatine	96	1870	27
Kansas	Leavenworth	96.0	Leavenworth	99	1875	Fort Leavenworth	103	1870	44
Do	Dodge City	95.0	Dodge City	102	1880	Fort Wallace	108	1879	27
Kentucky	Louisville	94.5	Louisville	100	1874	Newport Barracks	96	1879	27
Louisiana	New Orleans	91.7	New Orleans	97	1881	New Orleans	98	1879	51
Do	Shreveport	97.8	Shreveport	104	1875	Baton Rouge	98	1879	53
Maine	Eastport	81.6	Eastport	82	1884	Gardiner	94	1879	34
Do	Portland	90.1	Portland	94	1878	Portland	92	1879	38
Maryland	Baltimore	95.3	Baltimore	97.5	1874	Fort Washington	105	1853	47
Massachusetts	Boston	91.9	Boston	98	1874	Fort Independence	99	1854, 1872	38
Do	Boston	91.9	Boston	98	1874	New Bedford	95	1854, 1872	58
Michigan	Alpena	87.0	Alpena	94	1880	Fort Brady	96	1854	52
Do	Detroit	87.0	Detroit	93	1874	Detroit	95	1854	35
Minnesota	Saint Paul	88.6	Saint Paul	94	1874	Saint Paul	99	1870	7
Do	Saint Vincent	84.1	Saint Vincent	93	1883	Fort Snelling	90	1870	55
Mississippi	Vicksburg	96.2	Vicksburg	101	1881	Vicksburg	97	1870	4
Missouri	Saint Louis	92.0	Saint Louis	99	1881	Saint Louis	100	1870	39
Montana	Fort Benton	98.5	Fort Benton	101	1881	Fort Benton	104	1870	10
Do	Fort Shaw	88.7	Fort Shaw	96	1880	Fort Shaw	101	1870	7
Nebraska	North Platte	88.8	North Platte	101	1876	Fort McPherson	108	1876	13
Do	Omaha	93.8	Omaha	98	1881	Fort Kearney	101	1876	19
Nevada	Winnemucca	87.8	Winnemucca	95	1881	Camp Halleck	111	1871	15
New Hampshire	Mount Washington	63.2	Mount Washington	71	1878	Fort Constitution	96	1850, 1852	34
New Jersey	Sandy Hook	90.4	Sandy Hook	97	1874	Atco	102	1875	8
Do	Cape May	85.2	Cape May	89	1873, 1880	Newark	95	1864	10
New Mexico	Santa Fe	82.5	Santa Fe	92	1881	Santa Fe	98	1873	25
Do	Lava	101.8	La Mesilla	107.8	1881	Fort McBae	120	1873	11
New York	Oswego	85.0	Oswego	98	1875	Fort Hamilton	106	1864	39
Do	New York City	90.6	New York City	95	1875	Albany	94	1864	55
North Carolina	Wilmington	93.0	Wilmington	100	1880	Fort Johnson	99	1864	57
Do	Kitty Hawk	96.5	Kitty Hawk	99	1880	Fort Macon	96	1864	16
Ohio	Cincinnati	89.9	Cincinnati	98.5	1874	College Hill	100	1881	64
Do	Cleveland	88.4	Cleveland	96	1874	Marietta	99	1881	54
Oregon	Portland	86.2	Portland	99	1876	Fort Dalles	104	1881	15
Do	Roseburg	84.7	Roseburg	96.5	1878	Astoria	84	1881	20
Pennsylvania	Pittsburg	94.3	Pittsburg	98	1874	Carlisle Barracks	100	1881	37
Do	Philadelphia	93.0	Philadelphia	97	1874	Philadelphia	98	1881	113
Rhode Island	Block Island	77.4	Newport	89	1876	Providence	97	1881	35
South Carolina	Charleston	96.4	Charleston	100	1877, 1880	Charleston	96	1881	105
Tennessee	Memphis	95.7	Memphis	100	1881	Humboldt	104	1871, 1874	4
Do	Nashville	92.1	Nashville	99	1874	Glenwood College	91	1871	11
Texas	Fort Davis	97.7	Fort Davis	111	1881	Fort Ringgold	114	1877	32
Do	El Paso	106.6	El Paso	113	1883	Fort Duncan	112	1860	31
Utah	Salt Lake City	90.9	Salt Lake City	100	1883	Mount Carmel	107	1876	3
Vermont	Burlington	94	Burlington	94	1878	Lunenburg	98	1876	16
Virginia	Norfolk	96.9	Norfolk	102	1874	Fortress Monroe	97	1876	56
Do	Lynchburg	93.1	Lynchburg	97	1874	Accotink	97	1881	7
Washington Territory	Dayton	89.7	Dayton	97.5	1884	Fort Walls Walla	106	1876	12
Do	Olympia	82.0	Olympia	95	1878	Fort Vancouver	98	1876	19
West Virginia	Morgantown	93	Morgantown	93	1874	Weston	94	1875	2
Wisconsin	La Crosse	86.0	La Crosse	98	1874	Fort Howard	100	1875	30
Do	Milwaukee	85.6	Milwaukee	94	1874	Milwaukee	100	1870	11
Wyoming	Cheyenne	81.1	Cheyenne	97	1880, 1881	Fort Fred Steele	104	1871	15

Mattoon, Coles county: mean temperature, 71°.6, is 1° below the June average for the last five years.

Swanwick, Perry county: mean temperature, 72°.4, is 0°.4 below the June average for the last four years.

Collinsville, Madison county: mean temperature, 72°.1, is 2° below the June average.

Sycamore, De Kalb county: mean temperature, 65°.5, is about the normal for June.

Indiana.—Vevay, Switzerland county: mean temperature, 71°.9, is 2°.2 below the June average for the last twenty-one years.

Logansport, Cass county: mean temperature, 74°.3, is 3°.2 below the June average for the last twenty-six years.

Wabash, Wabash county: mean temperature, 70°.4, is 0°.5 above the June average for the last nine years.

Spiceland, Henry county: mean temperature, 68°.5, is 2° below the June average for a period of thirty-one years.

Kansas.—Wellington, Sumner county: mean temperature, 74°.4, is 0°.5 above the June average for the last seven years.

Yates Centre, Woodson county: mean temperature, 71°.1, exactly coincides with the June average for the last five years.

Independence, Montgomery county: mean temperature, 72°.9, is 2° below the June average for the last fourteen years.

Lawrence, Douglas county: mean temperature, 72°.6, is 1°.2 below the June average for the last seventeen years.

Maine.—Gardiner, Kennebec county: mean temperature, 62°.1, is 1°.3 below the June average for the last forty-nine years.

Maryland.—Fallston, Harford county: mean temperature, 68°.3, is 2°.2 below the June average for a period of twelve years.

Massachusetts.—Somerset, Bristol county: mean temperature, 69°.1, is 0°.2 below the June average.

Worcester, Worcester county: June is the tenth consecutive month the mean temperature for which has been below the normal; the normal for a period of forty-seven years is 65°.8; for June, 1885, it is 63°.5, or 2°.1 lower.

New Jersey.—South Orange, Essex county: mean temperature, 68°.2, is 1°.7 below the June average for the last fifteen years.

New York.—North Volney, Oswego county: mean temperature, 62°.5, is 2°.5 below the June average for seventeen years.

Palermo, Oswego county: mean temperature, 61°.1, is 4°.6 below the June average for the last thirty-two years.

Ohio.—Wauseon, Fulton county: mean temperature, 66°.5, is 2°.0 below the June average for fifteen years.

Pennsylvania.—Dyberry, Wayne county: mean temperature, 61°.2, is 3°.4 below the June average for a period of nineteen years.

Texas.—New Uln, Austin county: mean temperature, 81°.2, is 0°.7 above the June average for the last thirteen years.

Vermont.—Woodstock, Windsor county: mean temperature, 64°.3, is 0°.4 above the June average for the last eighteen years.

Virginia.—Wytheville, Wythe county: mean temperature, 70°.6, is 2°.4 above the normal for a period of twenty-two years.

Dale Enterprise, Rockingham county: mean temperature, 75°.3, is 5°.3 above the June average for the last five years.

West Virginia.—Helvetia, Randolph county: mean temperature, 65°.7, is 0°.4 below the June average for the last nine years.

FROSTS.

Frosts are reported to have occurred in the various states and territories as follows:

Arizona.—Fort Grant, 6th.

California.—Blue Lake, 6th.

Colorado.—Pike's Peak, 3d, 5th, 8th, 15th, 22d, 28th, 29th; Montrose, 8th; Fort Lewis, 6th, 7th, 8th.

Connecticut.—North Colebrook, 6th, 10th.

Dakota.—Fort Buford and Fort Yates, 8th; Bismarck, 8th, 9th, 22d, 23d; Huron, 8th, 22d; Yankton, 9th, 22d; Deadwood, 8th, 15th, 16th; Fort Meade, 16th; Webster, 8th, 9th, 22d.

Idaho.—Albion, 8th.

Illinois.—Mattoon, Wilton Centre and Charleston, 9th.

Indiana.—Logansport, Wabash, and La Fayette, 9th; Spiceland, 9th, 22d.

Iowa.—Des Moines, Cresco, West Union, and Muscatine, 9th; Dubuque and Manchester, 9th, 22d.

Maine.—Orono, 3d; Gardiner, 6th, 10th.

Massachusetts.—Rowe, 6th; Amherst, 10th.

Michigan.—Marquette, 8th; Lansing, 9th; Escanaba, 8th, 9th, 22d, 29th; Grand Haven, 9th, 10th, 22d, 29th; Buchanan, 9th, 10th, 13th, 16th, 17th, 22d, 29th, 30th; Manistique, 7th, 8th, 22d, 29th; Traverse City, 21st, 29th; Birmingham, 21st, 30th; Thornville, 22d; Hudson and Port Huron, 23d; Alpena, 29th.

Minnesota.—Duluth, 8th; Saint Vincent and Moorhead, 8th, 22d; Northfield, 8th, 9th; Chester, 9th, 20th.

Montana.—Fort Shaw and Helena, 8th; Fort Maginnis, 15th.

Nebraska.—Stockham, 8th; Columbus, 8th, 22d.

Nevada.—Winnemucca, 6th, 12th; Carson City, 4th, 6th, 7th, 11th to 14th, 26th.

New Hampshire.—Mount Washington, 1st, 8th, 9th, 10th, 23d.

New Jersey.—Dover, 10th.

New Mexico.—Santa Fe, 6th.

New York.—Oswego and Auburn, 3d; Ithaca, 6th; Humphrey, 10th; Factoryville and Menand Station, 6th, 10th; North Volney, 23d.

Ohio.—North Lewisburg, Westerville, Wauseon, and Yellow Springs, 9th; Garrettsville, 9th, 10th.

Oregon.—Fort Klamath, 6th.

Pennsylvania.—Dyberry, 2d, 3d, 10th; Wellsborough, 2d, 3d, 6th, 18th, 23d; Grampian Hills, 9th, 10th; Troy, 5th, 9th; Drifton, 9th.

Utah.—Nephi, 6th.

Vermont.—Strafford and Woodstock, 6th, 10th; Wooster Mountain, 9th, 24th; Dorset, 6th, 10th, 11th.

Wisconsin.—La Crosse, 22d, 23d; Embarras, 9th, 29th; Neillsville, 8th, 9th, 10th, 16th, 22d, 29th; Wausau, 8th, 9th, 29th.

Wyoming.—Fort Bridger, 7th, 8th; Cheyenne, 15th.

The following reports of injury to vegetation by the frosts of June have been reported:

Fort Grant, Arizona: a very low temperature (48°.8) for this season, occurred on the 6th; light frost was noticeable at this station, and a heavy frost occurred a few miles to the northward.

Saint Vincent, Minnesota: a killing frost occurred here on the morning of the 8th,

Moorhead, Minnesota: the frost on the 8th caused injury to garden vegetables and corn.

Huron, Dakota: a killing frost was reported from districts north of this place on the 8th.

Albion, Idaho: a killing frost occurred here on the 8th.

Northfield, Minnesota: a very light frost occurred on the 8th; on the 9th there was a heavy frost, but no damage was caused, except to tender vegetation in the lowlands.

Grand Haven, Michigan: reports from inland towns state that the frost on the morning of the 10th caused considerable damage to vegetation.

The "New York Journal of Commerce," of June 23d, contained the following:

Dispatches from the western part of the lower peninsula of Michigan report heavy frosts last night, with considerable damage to corn and other growing crops.

ICE.

The following instances of ice formation have been reported: Fort Lewis, Colorado, 6th, 7th, one-fourth inch in thickness. Mount Washington, New Hampshire, 2d.

PRECIPITATION.

[Expressed in inches and hundredths.]

The distribution of rainfall over the United States and Can-